## Sheet 1/ 6

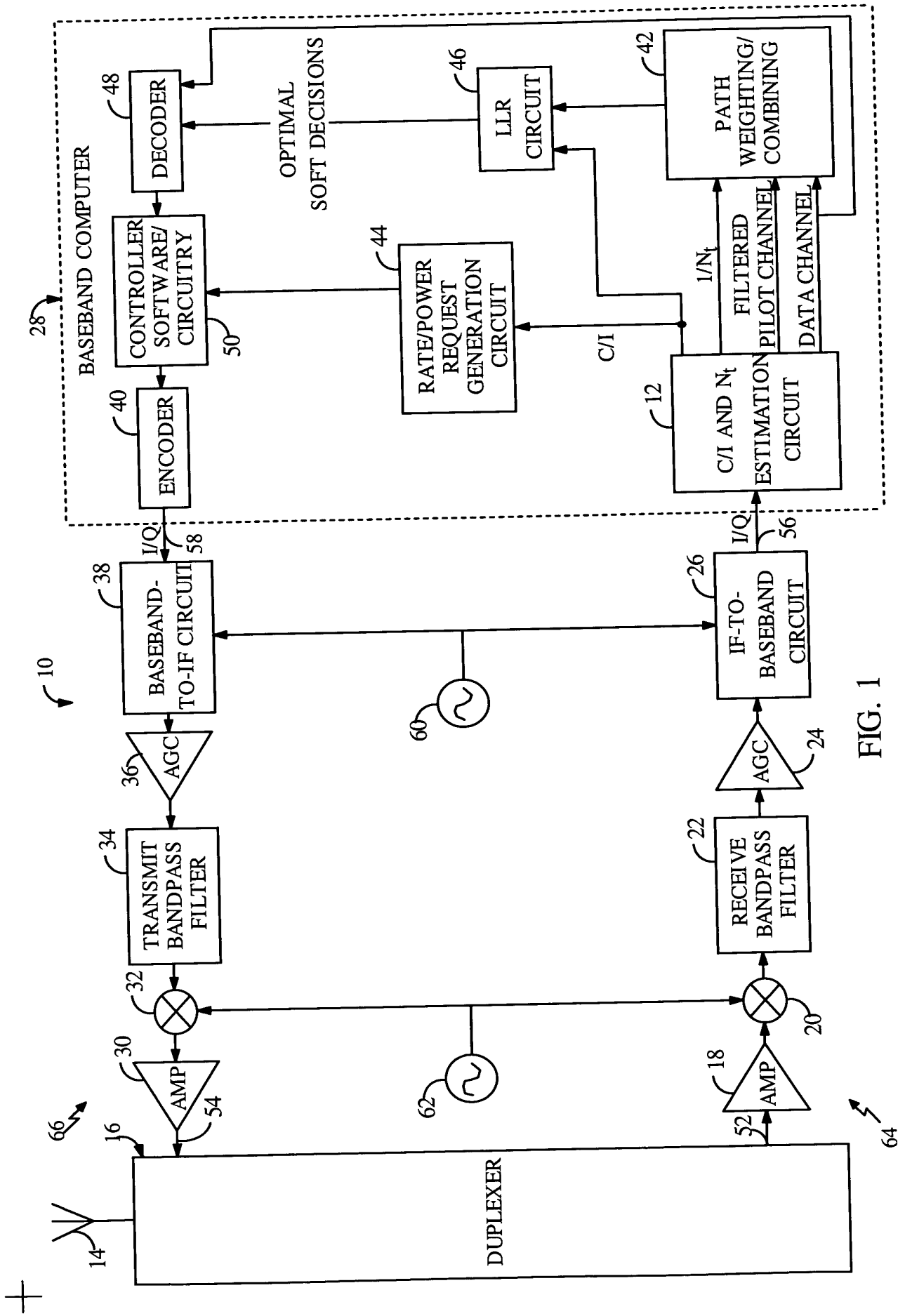


FIG. 1

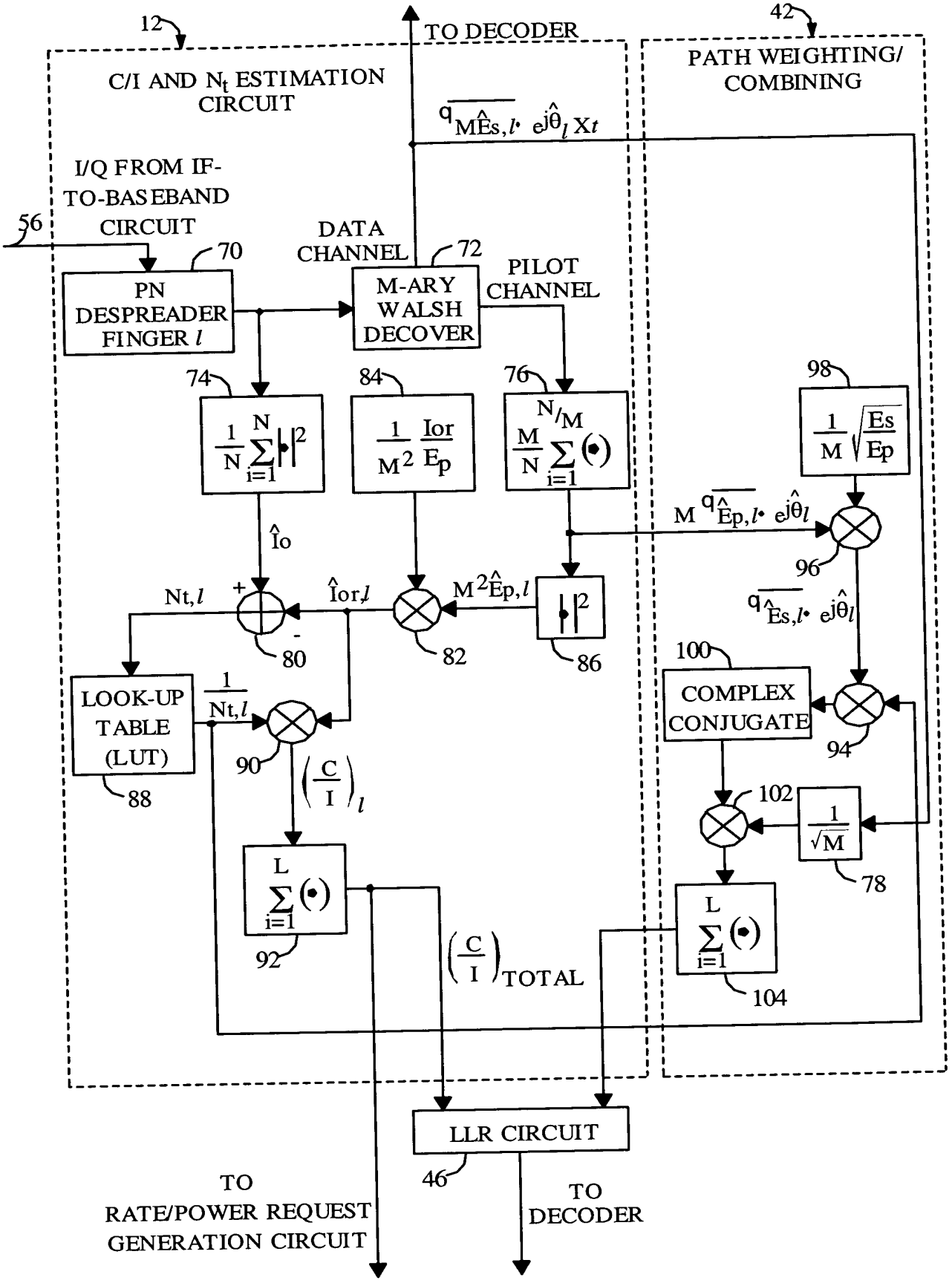
12
TO DECODER
42
C/I AND $N_t$ ESTIMATION CIRCUIT
PATH WEIGHTING/ COMBINING
$\overline{q_{M\hat{E}s,l} \cdot e^{j\hat{\theta}_l}} X_t$
I/Q FROM IF-TO-BASEBAND CIRCUIT
56
DATA CHANNEL
PILOT CHANNEL
70
72
PN DESPREADER FINGER $l$
M-ARY WALSH DECOVER
74
84
76
98
$\frac{1}{N}\sum_{i=1}^{N}|\bullet|^2$
$\frac{1}{M^2}\frac{Ior}{Ep}$
$\frac{M}{N}\sum_{i=1}^{N/M}(\bullet)$
$\frac{1}{M}\sqrt{\frac{Es}{Ep}}$
$\hat{I}o$
$M\,\overline{q_{\hat{E}p,l} \cdot e^{j\hat{\theta}_l}}$
96
$Nt,l$
+
$\hat{I}or,l$
$M^2\hat{E}p,l$
$|\bullet|^2$
$\overline{q_{\hat{E}s,l} \cdot e^{j\hat{\theta}_l}}$
-
80
82
86
100
LOOK-UP TABLE (LUT)
$\frac{1}{Nt,l}$
COMPLEX CONJUGATE
94
88
90
$\left(\frac{C}{I}\right)_l$
102
$\frac{1}{\sqrt{M}}$
78
$\sum_{i=1}^{L}(\bullet)$
92
$\left(\frac{C}{I}\right)_{TOTAL}$
$\sum_{i=1}^{L}(\bullet)$
104
LLR CIRCUIT
46
TO RATE/POWER REQUEST GENERATION CIRCUIT
TO DECODER

FIG. 2

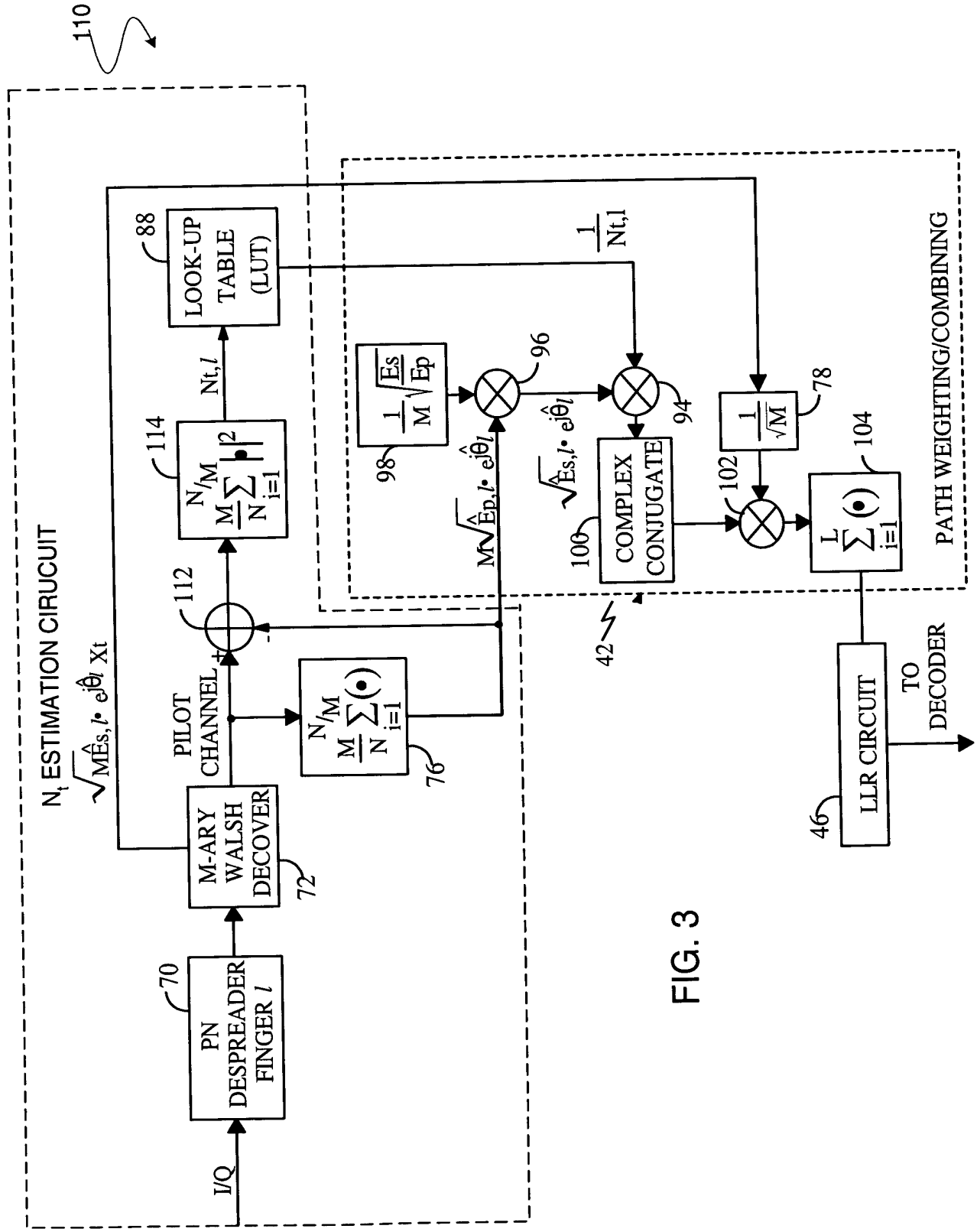
110
$N_t$ ESTIMATION CIRCUIT
$\sqrt{M\hat{E}_{s,l}} \cdot e^{j\hat{\theta}_l}$ Xt
I/Q
PN DESPREADER FINGER *l*
70
M-ARY WALSH DECOVER
72
PILOT CHANNEL
$\frac{N}{M}\sum_{i=1}^{M}(\bullet)$
76
112
$\frac{N}{M}\sum_{i=1}^{M}|\bullet|^2$
114
$N_{t,l}$
LOOK-UP TABLE (LUT)
88
$\frac{1}{N_{t,l}}$
$\frac{1}{M}\sqrt{\frac{Es}{Ep}}$
98
96
$M\sqrt{\hat{E}_{p,l}} \cdot e^{j\hat{\theta}_l}$
$\sqrt{\hat{E}_{s,l}} \cdot e^{j\hat{\theta}_l}$
94
COMPLEX CONJUGATE
100
$\frac{1}{\sqrt{M}}$
78
102
$\sum_{i=1}^{L}(\bullet)$
104
PATH WEIGHTING/COMBINING
42
LLR CIRCUIT
46
TO DECODER

FIG. 3

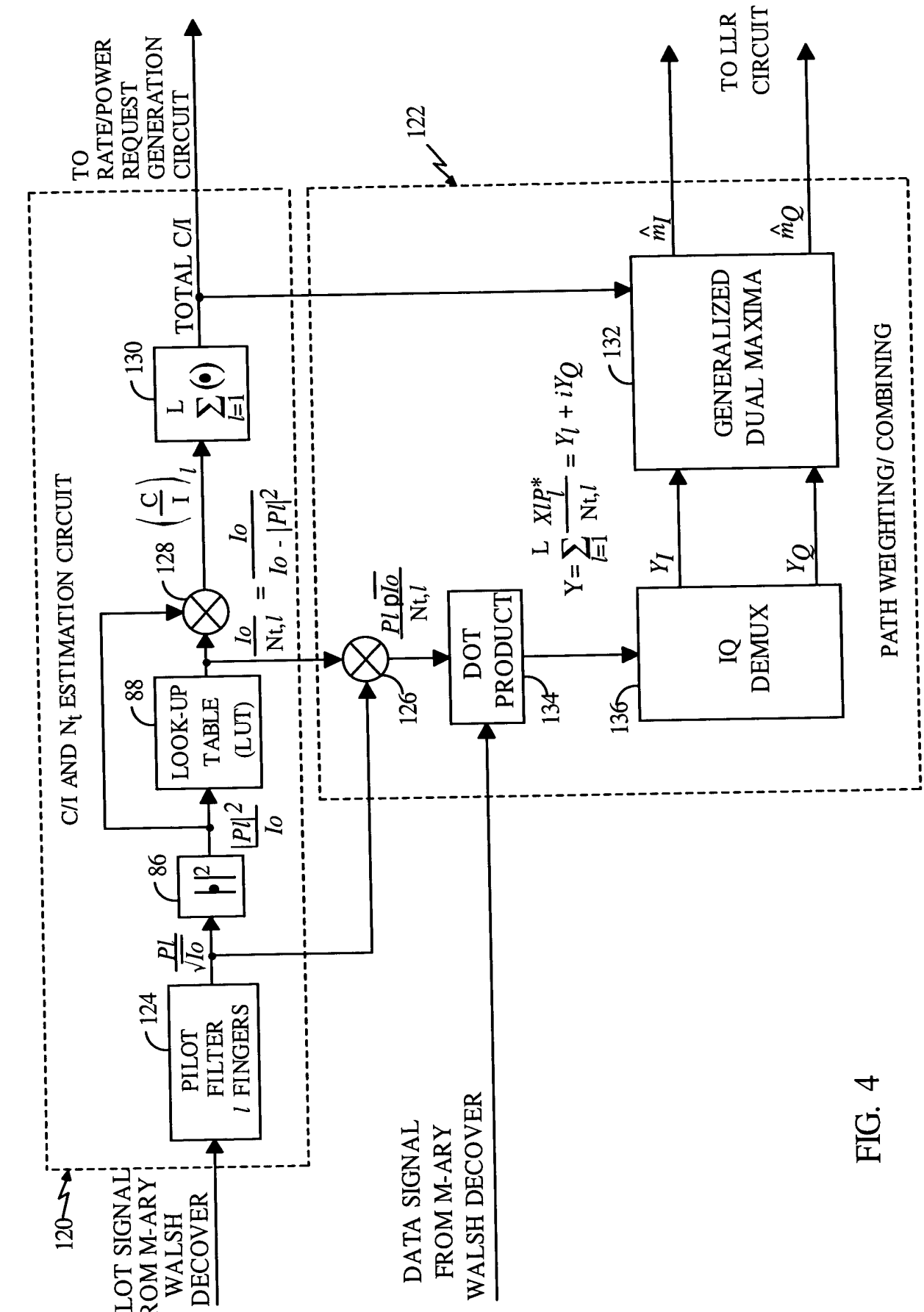
TO RATE/POWER REQUEST GENERATION CIRCUIT
TOTAL C/I
130
L Σ (•) l=1
128
(C/I)l
Io / (Io - |Pl|2)
C/I AND Nt ESTIMATION CIRCUIT
LOOK-UP TABLE (LUT)
88
|Pl|2 / Io
86
|2
Pl / √Io
124
PILOT FILTER l FINGERS
120
PILOT SIGNAL FROM M-ARY WALSH DECOVER
Io / Nt,l
Pl p Io / Nt,l
126
DOT PRODUCT
134
DATA SIGNAL FROM M-ARY WALSH DECOVER
L Y = Σ XlPl* / Nt,l = Yl + iYQ l=1
122
IQ DEMUX
136
YI
YQ
GENERALIZED DUAL MAXIMA
132
m̂I
m̂Q
TO LLR CIRCUIT
PATH WEIGHTING/ COMBINING

FIG. 4

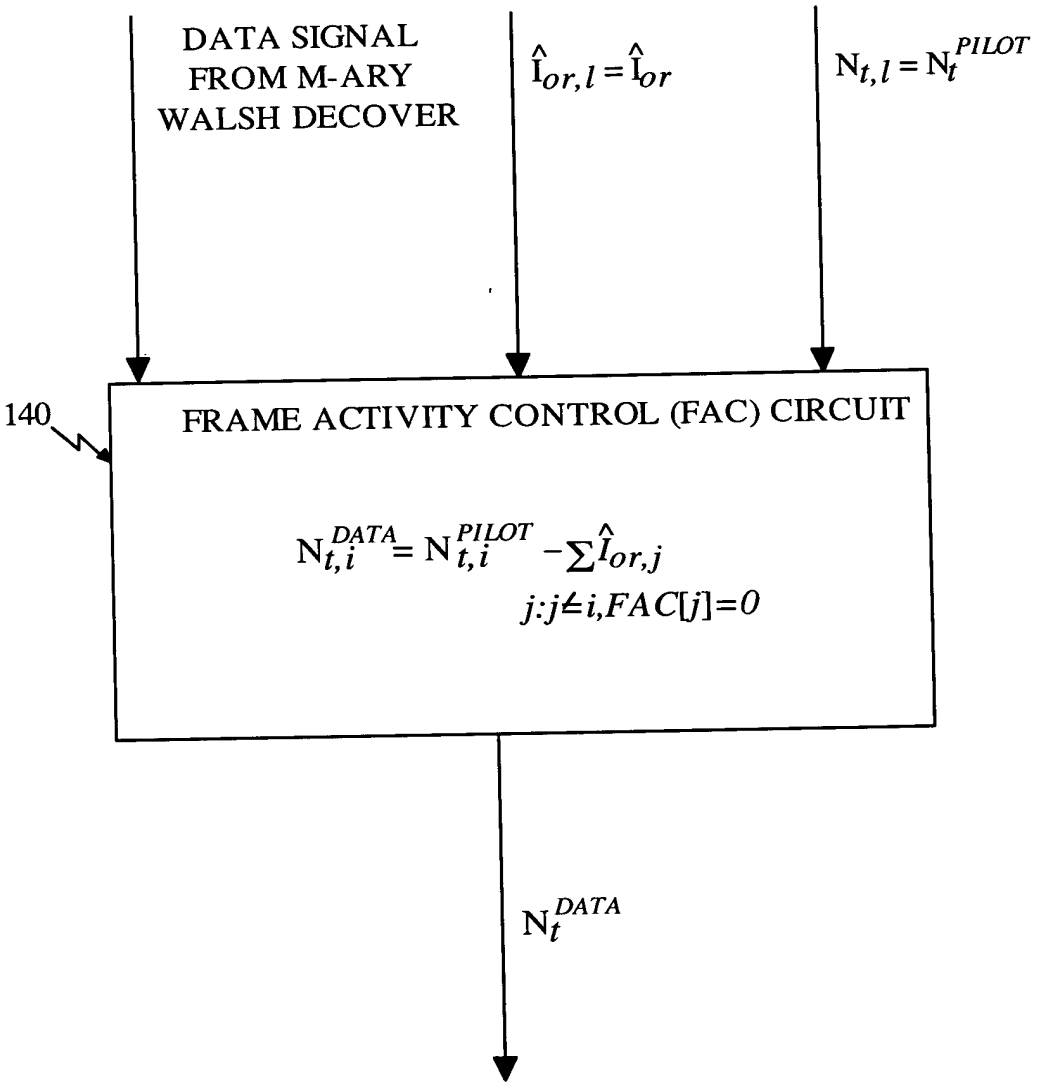
DATA SIGNAL FROM M-ARY WALSH DECOVER
$\hat{I}_{or,l} = \hat{I}_{or}$
$N_{t,l} = N_t^{PILOT}$
140
FRAME ACTIVITY CONTROL (FAC) CIRCUIT
$N_{t,i}^{DATA} = N_{t,i}^{PILOT} - \sum_{j:j \leq i, FAC[j]=0} \hat{I}_{or,j}$
$N_t^{DATA}$

FIG. 5

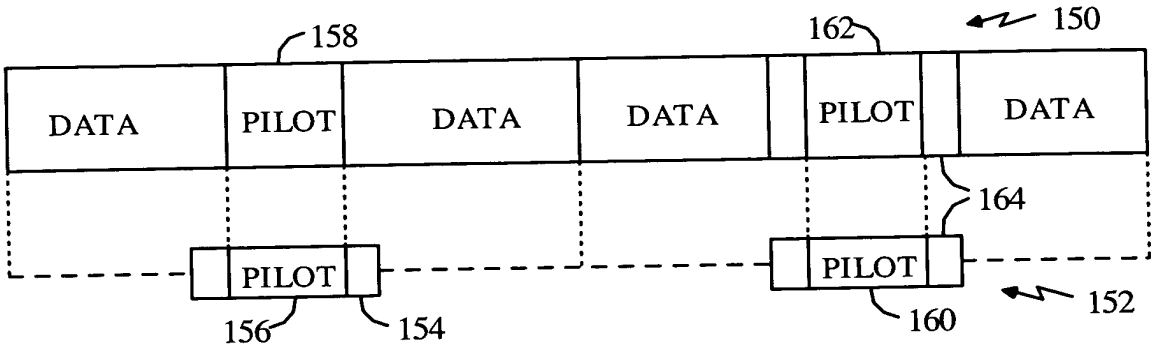
158
162
150
DATA
PILOT
DATA
DATA
PILOT
DATA
164
PILOT
PILOT
152
156
154
160

FIG. 6

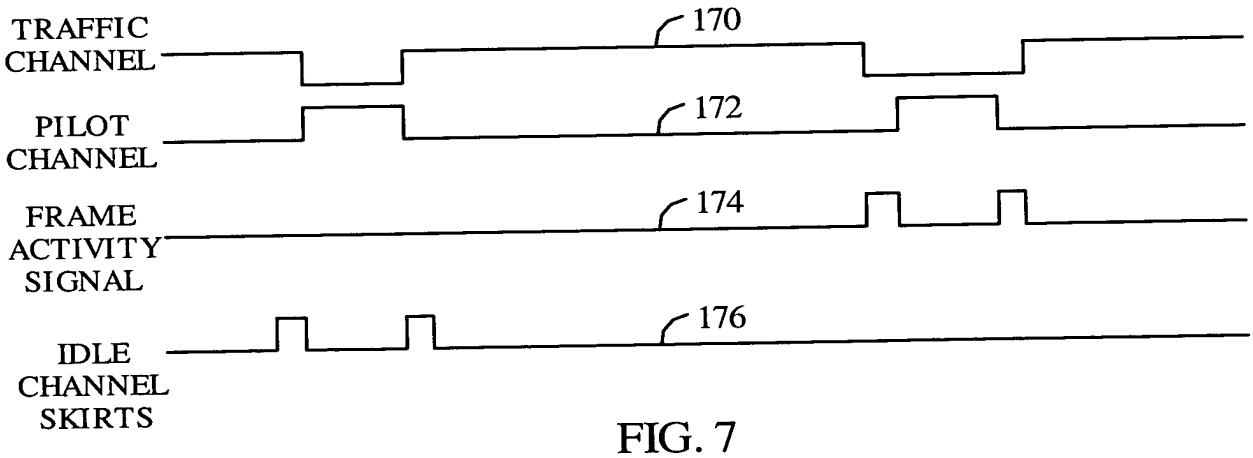
TRAFFIC CHANNEL
170
PILOT CHANNEL
172
FRAME ACTIVITY SIGNAL
174
IDLE CHANNEL SKIRTS
176

FIG. 7